

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



# United States Department of Agriculture,

## FOREST SERVICE.

HENRY S. GRAVES, Forester.

---

### SILVICAL LEAFLET 51.

---

#### BROADLEAF MAPLE.

*Acer macrophyllum* Pursh.

Four species of maple grow naturally in the forests of the Pacific coast:

(1) Broadleaf maple, *Acer macrophyllum* Pursh., the subject of this leaflet;

(2) Vine maple, *Acer circinatum* Pursh., a small tree, commonly shrublike, growing as an underbrush in fertile soils in the coast region of British Columbia, Washington, Oregon, and northern California;

(3) Dwarf maple, *Acer glabrum* Torr., a small, slender tree, or small-stemmed shrub, found commonly on mountain sides in thin-soiled situations in southeastern Alaska, British Columbia, Washington, Oregon, Idaho, Montana, Colorado, western Nebraska, California, Arizona, and New Mexico;

(4) California boxelder, *Acer negundo californicum* (T. and Gr.) Sargent, a short and stocky tree of southern California which grows chiefly along streams and in canyons.

Of these four species, broadleaf maple, so-called because of its large leaves, which are sometimes a foot across, is the largest and the only one of commercial importance. It reaches a fair size, but its form is usually so poor that it is not extensively utilized, even though there is but little hardwood timber of any value within its range.

#### RANGE AND OCCURRENCE.

Broadleaf maple's natural range is from a point south of latitude 55° in southeastern Alaska southward through the coast region of British Columbia, Washington, Oregon, and California, and in the San Bernardino Mountains in southern California. It grows also along the western slopes of the Cascade and Sierra Nevada Mountains in Washington, Oregon, and California, as far south as Tulare County. In the northern part of its range it is confined to the coastal strip; in Washington and Oregon it occurs on the humid

mountain ranges up to an elevation of from 3,000 to 3,500 feet; and farther south in the mountains up to an elevation of 6,000 feet.

Since broadleaf maple is a moisture-loving species it is confined to the more humid situations. It usually is found along the margins of foothills and low mountain streams, in alluvial river bottoms, or on particularly well-watered slopes, and prefers north slopes and protected canyons. On bottoms and springy hillsides in the coastal regions of Oregon and Washington it reaches its best development. In the southern part of its range, where the climate is less humid, it is confined to the vicinity of watercourses.

#### CLIMATE.

The range of broadleaf maple is limited to a region of rather high precipitation and moderate temperature. The fact that it avoids the more rigorous climate of the high mountains, and the slopes where the humidity is deficient, indicates that it demands a long growing season and plenty of moisture. It prefers localities and reaches its best development where the atmospheric humidity is high. In the northern part of its range the annual precipitation varies from 40 to 80 inches; in California it grows where the rainfall is but 20 inches per year.

#### ASSOCIATED SPECIES.

Broadleaf maple occurs as an incidental species in mixture with more important commercial species, chiefly conifers, commonly forming an understory. Among its chief associates in the northern part of its range are Douglas fir, western red cedar, Sitka spruce, lowland fir, western hemlock, and of lesser importance red alder, black cottonwood, western dogwood, Oregon ash, and vine maple. In California it grows in mixture chiefly with Douglas fir, redwood, California laurel, various species of oak, madroña, and other smaller broadleaf trees. Sometimes, particularly in wet situations, it occurs in almost pure stands.

#### HABIT.

Over most of its range broadleaf maple is a small tree, less than 50 feet in height and 18 inches in diameter, of bushy or crooked form. On good soils in Oregon and Washington, in competition with tall conifers, it is sometimes 100 feet high and 30 inches in diameter. Open-grown trees have short trunks and broad, dense, round-topped crowns, while those in dense stands produce timber clear of branches for from one-half to two-thirds of their height, and a short, narrow crown. Even then the bole is rarely without bad crooks, forks, burls, or other defects, and this tendency toward poor form prevents the



tree from being used to a greater extent for commercial purposes. In very poor situations, and at higher elevations, broadleaf maple is sometimes shrublike. The root system is moderately shallow, but spreading.

It is planted quite abundantly as a shade tree in the cities of the Northwest, and is well adapted for the purpose.

#### SOIL AND MOISTURE.

Broadleaf maple is generally considered to be more exacting than its associates in soil and moisture requirements. It demands a great deal of moisture, and this limits its local distribution. It also needs a fairly deep and preferably an alluvial, or loamy, soil. It avoids overflowed and peaty soils.

#### TOLERANCE.

The tree will remain alive in very dense shade, but apparently requires overhead light to reach any considerable size. It is a little less tolerant than vine maple, dogwood, western red cedar, western hemlock, and western yew, but more so than its other associates.

#### GROWTH AND LONGEVITY.

Compared with its coniferous associates, broadleaf maple is not a long-lived tree, but for a broadleaf species it reaches a good age. Large specimens live for over 200 years. In the forest its growth is comparatively slow, probably because of its suppressed position, but in the open it grows rapidly. Coppice sprouts make an exceedingly vigorous growth.

#### SUSCEPTIBILITY TO INJURY.

From its usual position in the understory of humid forests, broadleaf maple is not greatly exposed to injury from wind and fire. Its thin bark, however, makes it very susceptible to damage from fire when one occurs. It seems to be a favorite host for various vegetable epiphytes (and perhaps parasites), mosses, and lichens, and it is quite possible that its poor form is due partly to these plants. Trees of more than medium size, 18 inches in diameter, are very commonly affected with rot.

#### REPRODUCTION.

In the open, broadleaf maple produces an enormous quantity of seed, as do its eastern relatives—sugar maple and red maple; in dense woods the seed production is light. Some seed is borne nearly every year by full-crowned trees. Under forest conditions the number of seedlings that become established is not large, and those which do

are scattered through the forests in open spots on moist soil. Germination is apparently excellent, but the seedlings do not survive unless their roots reach mineral soil and become well established before the dry season sets in.

Broadleaf maple sprouts very vigorously from the stump, usually sending up a few sprouts which develop into good-sized trees.

#### UTILIZATION.

It is only in Washington and Oregon that broadleaf maple reaches sufficient size and abundance to be of any real commercial significance, and even here it is of very minor importance. The wood is fine-grained, firm, tough, not hard, light in color, turns well, takes an excellent polish, and owing to its wavy grain makes a good imitation mahogany. It should be adapted to the same uses as eastern red maple, but because of its scattered occurrence and poor form commercial quantities of clear, sound material of good sizes are difficult to obtain. The local wood-using industries in Oregon use about two and a half million board feet annually, over 90 per cent of which goes into furniture, and the rest into handles, interior finish, fixtures, saddles, pulleys, etc. The fancy-grained wood found in burls commands a good price for furniture. Near Stonyford, Cal., violins of fine quality have been made from broadleaf maple. It is also used locally to some extent for firewood.

The sap of broadleaf maple, like that of sugar maple, is sweet, and can be made into sirup. In regions where the climate is right the flow of sap is considerable, but it is not likely that its use on a large scale as a source of maple sirup would be profitable. The census of 1900 (which gives the latest available data) reports as a total production from broadleaf maple 126 gallons of sirup (made in Columbia County, Wash.).

#### MANAGEMENT.

Since it is of such slight value as a commercial tree and occurs in such small quantities, broadleaf maple is not a species to which the forester should give particular attention or encouragement. It will maintain naturally its incidental position in the humid forests of the Pacific coast, and so supply the small demand made upon it.